IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of : Pierre Fayet	Confirmation No. 4554
Serial No.: 10/529,533	Group Art Unit: 1792
Filed: April 19, 2005	Examiner: Keath T. Chen
Title: DEVICE FOR THE TREATMENT OF A WEB-TYPE MATERIAL IN A PLASMA-ASSISTED PROCESS	
Atty. Dkt.: FRR-16006	

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REPLY BRIEF (37 CFR § 41.37)

Applicant is submitting a Reply Brief. No payment is required. If any additional fees are due in combination with this filing, please charge such additional required fees to our Deposit Account No. 18-0160, our Order No. FRR-16006.

This brief contains the items under the following headings in the order set forth below:

I. STATUS OF CLAIMS

II. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

III. ARGUMENTS

I. STATUS OF CLAIMS

A. Total Number of Claims in Application

Seven claims are currently pending in this application.

B. Status of the Claims

1. Claims previously canceled: Claims 2-6.
2. Claims withdrawn from consideration but not cancelled: None.
3. Claims pending: Claims 1 and 7-12.
4. Claims allowed: None.
5. Claims rejected: Claims 1 and 7-12.
6. Claims objected to: None.
7. Claims indicated as allowable if the § 112 rejections are overcome: None.

C. Claims on Appeal

The claims on appeal are: Claims 1 and 7-12.

II. GROUNDS OF REJECTION TO BE REVIEW ON APPEAL

1. Whether claims 1 and 7-12 are patentable under 35 U.S.C. §103(a) over U.S. Patent No.5,879,519 to Seeser et al. in view of U.S. Patent No. 3,884,787 to Kuehnle and U.S. Patent 6,306,265 to Fu et al.

III. ARGUMENTS

Applicant acknowledges the Examiner's withdrawal of the rejection of claim 8 under 35 U.S.C. §112, first paragraph.

Regarding claim 1 and the rejection under 35 U.S.C. §103(a) over Seeser in view of Kuehnle and Fu, contrary to the Examiners statements, Applicant believes Seeser fails to teach a single step PECVD process. The whole disclosure of Seeser is about multiple step processes. Figs. 14-16 of Seeser refer to possible drive mechanisms and thus show stations 26, 27, 28 only purely schematically. These figures must not be interpreted in an isolated way without considering the context. The context of the whole disclosure of Seeser has to be taken into account. In context, this is clearly a multiple step process. It does not mean that all stations 26-28 are the same, just because Seeser designates the stations with "26, 27, 28" in Figs. 14 and 16. This just means that that the location of the deposition and reaction stations can be selected at any of these positions indicated in Fig. 14 and 16. If Seeser meant to disclose multiple use of one and the same type of station, three times "26", for example, would have been used, or a corresponding description of a single step process would have been added.

Further, in contrast to the Examiner's statements, Applicant believes Seeser does not teach more than two independent, *substantially identical* rectangular magnetron electrodes. The magnetrons 26-28 in Seeser are not identical, because different process gas mixtures and process parameters are used, as required for the multiple step process. As disclosed in Col. 3, l. 50-59 of Seeser, the deposition and reaction devices are not necessarily the same: Deposition devices are stationary magnetron devices, rotating magnetron devices point source sputter guns, stationary

evaporation sources, centrifugal-force rotating evaporation sources, reactive ion-plating sources. Reaction devices are self-starting ion guns, non self-starting ion guns, point ion sources, microwave sources, RF sources and arc sources. Figs. 1-3 show these stations only purely schematically ("in a simplified schematic perspective view", Col. 6, l. 33-34), and contain no further disclosure regarding the structure of these sources.

Regarding the claim feature of each magnetron electrode being powered by its own power supply unit, which is not shown by Seeser, the Examiner states (in his response to Applicant's arguments) that a person of ordinary skill in the art would have placed the magnetron unit of Seeser's Fig. 37A at each station in Figs. 15-16. Applicant disagrees. Normally, the skilled person always tries to reduce the number of components, especially sensitive and expensive components as power supplies, for the sake of easy maintenance and reduction of costs. One power supply unit per magnetron leads to higher costs and a far more complicated setup, also regarding the control of these units. This is thus something the skilled person would not consider. To the contrary, especially if one and the same process is to be carried out by multiple magnetrons, as presently claimed, the skilled person would certainly use one and the same power supply for all these units. Furthermore, a modular design, as mentioned by the examiner, is not a requirement for coating devices.

Claim 1 also requires that gas supply lines extend between neighboring magnetron electrodes. The Examiner states that the gas supply lines extend between neighboring magnetron electrodes 57 shown in Fig. 7 of Seeser outside of the magnetron, therefore between neighboring magnetrons.

However, Figs. 6 and 7 of Seeser show only the ion source 40 which is used in the reaction station 28 depicted in Fig. 1-3 (Col. 8, l. 39-50). The gas supply is not arranged between neighboring electrodes 46, but lateral of each one of these electrodes.

What is meant with this feature in Applicant's claims is that the gas supply lines are arranged between neighboring magnetron faces (see ref. numeral 6 in Fig. 1 of the application, for example). But this also is not disclosed by Seeser: Fig. 6 and 7 do not show the complete reaction station, but only a part thereof. In addition to the components shown in Figs. 6 and 7 of Seeser, the reaction station 28 also comprises a housing 32 as shown in Fig. 4 and 5, which is explicitly not shown in Fig. 6 and 7, but nevertheless present. Thus, Fig. 6 and 7 must not be considered in an isolated way, but in combination with the other figures, in particular Figs. 1-5. Gas supply 57 in Fig. 57 corresponds to gas supply 37 in Fig. 5. Fig. 5 shows that the gas supply 37 is within the housing 32. Thus, also in Fig. 7 the gas supply 57 is within the (not depicted) housing. Consequently, Seeser does not disclose that the gas supply line is between neighboring magnetron faces.

This feature is also not rendered obvious by Seeser. Modifying Seeser such that the gas supply is outside the housing makes no sense: The housing confines the electromagnetic fields to the process space in front of the electrodes (i.e. within/in front of the housing). A gas supply outside the housing means that the gas is supplied to regions where only reduced E/B-fields are present (this is not the case with the claimed invention, because there are no baffles/housings around the magnetron faces). Thus, with such a modification, no plasma could be generated, which is a contradiction to the

purpose of Seeser. Furthermore, Seeser requires complete physical separation of the zones for deposition and reaction (Col. 2, l. 56-60, Col. 4, l. 6-8). Thus, the skilled person would never consider supplying the gas outside the reaction stations and between neighboring stations, where it would flow to a zone where the gas is not desired.

The Examiner states that in Seeser, the magnetron faces and gas supply lines are arranged side by side (Fig. 7, elements 57 and 46), and thus meet claim requirements.

The magnetron is the whole device 26-28, 30, e.g. as shown in Fig. 4 of Seeser, not only the electrode 46. The electrode 46 is only a part of the magnetron, which in the embodiment of Fig. 6+7 even comprises two electrodes 46. Consequently, the gas supplies are not arranged side by side with the magnetrons, but are arranged within the housing of the magnetrons and are thus an integral part of the magnetron according to Seeser.

The Examiner also states that Seeser in Fig. 15 or 16 teaches a *baffle-free* combined process space, and thus meets the claim requirements.

- Regarding Fig. 15, Seeser clearly discloses several stations which each have their own process space, separated by baffles (the housings) from the other process spaces. There is no baffle-free combined process space of all stations in Fig. 15. The process space in front of each individual magnetron is no combined process space, but an individual process space which is separated from the others. A combined process space means that the process spaces of all magnetrons are combined to one baffle-free process space (from claim 1: "the magnetron faces and the gas supply lines ... form

together with a part of the circumferential surface of the drum one baffle-free combined process space"; "the" in this context means "all").

- Regarding Fig. 16, reference numerals 26-28 designate the stations, which, according to the other figures, always comprise a housing and thus baffles. Again, Fig. 16 must not be interpreted isolated without looking at the complete disclosure of Seeser, which requires physically separated deposition and reaction zones, which are thus also present in the simplified representation of the device of Fig. 16.

The Examiner also states that Seeser teaches supply gas lines connected to a source of only one process gas mixture (Fig. 15 or Fig. 16), as required by the claims.

Seeser discloses a multiple step process, and nothing else. Thus, one needs more than one process gas. There is no clear disclosure that one and the same process gas might also be used in all of the stations. Figs. 15 and 16 do not even show the gas supply. Fig. 16 does not disclose that the same station is used at all positions indicated around the circumference of the drum. It is not the question whether one could connect the same gas source to all gas supply lines. Using only one process gas is clearly not an intended use of the device of Seeser, because the use of only one gas contradicts the multiple step process with deposition and reaction steps, for which the apparatus of Seeser is intended.

Further, regarding the Examiner's response to Applicant's Argument VII, that Seeser does not teach a single step coating process, the Examiner states that a single step process is an intended use of the apparatus of Seeser.

Seeser discloses only multiple-step processes comprising a deposition step and a reaction step. Consequently, a single step process is not an intended use of the apparatus of Seeser.

Col. 16, l. 33-35 of Seeser discloses only "single or multiple layer" deposition. This is different from a single or multiple step process. Seeser teaches making single layers with multiple steps (deposition and reaction). The material constituting the layer is first deposited, and then transferred into the desired state by a chemical reaction. For example, a metal oxide layer is produced by first depositing the metal and then oxidizing it. Multiple layers are made by several of such multiple step processes one after the other. Col.16, l. 49-52 has to be interpreted in context again. Col. 16, l. 49-52 deals with one mode of deposition, i.e. along the entire length of the web, while l. 59-66 deal with coating of sections of the web. Nevertheless, in both cases, the web passes different stations where deposition or reaction steps are performed, in the example of l. 49-52 just with a delay in time between these steps (after rewinding the film). Thus, the deposition and reaction steps are separated in time, but are still present as separate steps, and the apparatus is still intended for performing these different steps.

With regard to Applicant's argument that Seeser does not teach magnetron faces and gas supply lines arranged side by side, the Examiner states that such a configuration is shown in Figs. 7, 8, 9 and 16 of Seeser.

However, Fig. 7 of Seeser shows only one single magnetron, with the omission of the housing. As discussed above, the gas supply lines 57 are within the magnetron and thus not arranged between neighboring magnetrons. Figs. 8 and 9 show only an alternative arrangement of a rotary cylindrical system. There is no explicit teaching

about the gas supply lines. From Fig. 4-7 it can be derived that the gas supply lines are again within the housings of the stations 26-28 and thus not in between the stations. In Fig. 16, the magnetrons 26-28 are side by side, but the gas supply lines are an integral part of the magnetrons and not arranged side by side with the magnetrons (as individual parts).

With regard to Applicant's argument that Seeser does not teach all gas supply lines are connected to a source of only one process gas, the Examiner maintains that the use of gas is an intended use and that a single layer deposition is taught along the entire length of the web in Seeser, thus, the same process gas would be supplied to all gas lines.

However, Seeser discloses a step where a single layer is deposited or oxidized by operating the selected device or group of devices to deposit the material or oxidize the previously deposited material (col. 16, l. 49-55). This step is part of the multiple step process for forming the complete layer or layers. Furthermore, the required selection of the device or group of devices shows that not all devices are identical but have different functions and thus also different process gases.

Conclusion

The prior art rejections of the cited claims should be reversed because the cited references either do not disclose the invention fully.

For the reasons set for the herein, the rejections of the claims 1 and 7-12 of the present application are in error and must be reversed.

Respectfully submitted,

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Date: June 26, 2009

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